

CLAIMS

What is claimed is:

1. A tone generation method for use in a communication system, said method comprising:

5 receiving a first tone data indicative of a first tone;

buffering said first tone data in a buffer;

receiving a second tone data indicative of a second tone;

buffering said second tone data in said buffer;

retrieving said first tone data from said buffer;

10 generating said first tone corresponding to said first tone data for at least a first predetermined period;

waiting for a second predetermined period;

retrieving said second tone data from said buffer; and

generating said second tone corresponding to said second tone data for at least said

15 first predetermined period.

2. The method of claim 1, wherein said first tone is a DTMF digit.

3. The method of claim 1, wherein said first predetermined period is approximately 50 msec.

4. The method of claim 1, wherein said second predetermined period is
20 approximately 50 msec.

5. The method of claim 1, wherein said first tone data is a part of an NTE packet.

6. The method of claim 5, wherein said second tone data is a part of said NTE packet.

7. The method of claim 1, wherein said first tone is generated for approximately 40ms.

8. A tone generation device for use in a communication system, said device comprising:

5 a receiver capable of receiving a first tone data indicative of a first tone and a second tone data indicative of a second tone;

a memory; and

a processor capable of storing said first tone data and said second tone data in said memory;

10 wherein said processor retrieves said first tone data from said memory and generates said first tone corresponding to said first tone data for at least a first predetermined period, and wherein said processor waits for a second predetermined period, retrieves said second tone data from said memory and generates said second tone corresponding to said second tone data for at least said first predetermined period.

15 9. The device of claim 8, wherein said first tone is a DTMF digit.

10. The device of claim 8, wherein said first predetermined period is approximately 50 msec.

11. The device of claim 8, wherein said second predetermined period is approximately 50 msec.

20 12. The device of claim 8, wherein said first tone data is a part of an NTE packet.

13. The device of claim 12, wherein said second tone data is a part of said NTE packet.

14. The device of claim 8, wherein said second tone is generated until an end of tone data is received.

15. A tone generation method for use in a communication system, said method comprising:

receiving a first tone data and a first tone duration, said first tone data being indicative of a first tone;

5 buffering said first tone data in a buffer;

retrieving said first tone data from said buffer;

generating said first tone corresponding to said first tone data;

starting a first timer when said first tone starts being generated, said first timer being set for a first predetermined period, said first predetermined period being independent of said first tone duration;

restarting said first timer when a keep-alive data for said first tone is received; and

stopping to generate said first tone when said first timer expires.

16. The method of claim 15, wherein said first predetermined period is approximately 200 msec.

15 17. The method of claim 15, wherein said first tone is a DTMF digit.

18. The method of claim 15, wherein said first tone data is a part of an NTE packet.

19. The method of claim 15 further comprising:

receiving a second tone data indicative of a second tone prior to said stopping to

20 generate said first tone;

buffering said second tone data in said buffer;

determining an elapsed time since said starting said first timer;

ceasing to generate said first tone when said elapsed time exceeds a second predetermined period;

waiting for a third predetermined period;
retrieving said second tone data from said buffer; and
generating said second tone corresponding to said second tone data.

20. The method of claim 19, wherein said first and second tones are DTMF digit
5 digits.

21. The method of claim 19, wherein said second predetermined period is
approximately 50 msec.

22. The method of claim 19, wherein said third predetermined period is
approximately 50 msec.

23. A tone generation device for use in a communication system, said device
10 comprising:

a receiver capable of receiving a first tone data and a first tone duration, said first tone
data being indicative of a first tone;

a memory;

15 a first timer capable of being set for a first predetermined period, said first
predetermined period being independent of said first tone duration; and

a processor capable of storing said first tone data in said memory;

wherein said processor retrieves said first tone data from said memory and generates
said first tone corresponding to said first tone data, starts said first timer when said first tone
20 starts being generated, restarts said first timer when a keep-alive data for said first tone is
received and stops to generate said first tone when said first timer expires.

24. The device of claim 23, wherein said first predetermined period is
approximately 200 msec.

25. The device of claim 23, wherein said first tone is a DTMF digit.

26. The device of claim 23, wherein said first tone data is a part of an NTE packet.

27. The device of claim 23 further comprising:

a second timer for use to determine an elapsed time since said processor started said first tone;

5 wherein said receiver is capable of receiving a second tone data indicative of a second tone, and wherein said processor is capable of storing said second tone in said memory, and wherein said processor ceases to generate said first tone when said elapsed time exceeds a second predetermined period, waits for a third predetermined period, retrieves said second tone data from said memory, and generates said second tone corresponding to said second
10 tone data.

28. The device of claim 27, wherein said first and second tones are DTMF digit digits.

29. The device of claim 27, wherein said second predetermined period is approximately 50 msec.

15 30. The device of claim 27, wherein said third predetermined period is approximately 50 msec.

31. A tone generation method for use in a communication system, said method comprising:

receiving a first tone data and a first tone duration, said first tone data being indicative
20 of a first tone;

buffering said first tone data in a buffer;

receiving a second tone data and a second tone duration, said second tone data being indicative of a second tone;

buffering said second tone data in said buffer;

establishing a fixed tone period and a fixed silence period independent of said first tone duration and said second tone duration;

retrieving said first tone data from said buffer;

generating said first tone corresponding to said first tone data for said fixed tone

5 period;

waiting for said fixed silence period;

retrieving said second tone data from said buffer; and

generating said second tone corresponding to said second tone data for said fixed tone

period.

10 32. The method of claim 31, wherein said first tone is a DTMF digit.

33. The method of claim 31, wherein said fixed tone period is approximately 50 msec.

34. The method of claim 31, wherein said fixed silence period is approximately 50 msec.

15 35. The method of claim 31, wherein said first tone data and said first tone duration are a part of an NTE packet.